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ABSTRACT

This paper attempts a systematic approach to the teaching of word stress in the ESL classroom. Stress assignment rules from Chomsky and Halle and from Ross are used to establish the SISL Principle (Stress Initial Strong Left), for final weak-syllable words. On the basis of spelling, this rule can be applied correctly to 95 out of 100 cases. (AM)

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GENERATING ENTHUSIASM WITH GENERATIVE PHONOLOGY

Wayne B. Dickerson

Most of us are familiar, I'm sure, with calypso music and lyrics. Calypso is an exercise in deliberately misstressing words. It is the art of putting the emPHÁsis on the wrong sylLÁBle. This is a complex and difficult distortion to master. The difficulty we native English speakers experience with calypso is undoubtedly akin to what nonnative speakers--learners of English--experience when trying to cope with normal English stress. For them the difficulty is in learning the art of putting the emphasis on the right syllable. It is this art that we teachers of English as a second language would like our students to master. But how can we help them do it?

Word Stress in ESL Materials

In current pronunciation texts there is virtually no help to be found (Dickerson, forthcoming c). If the matter of word stress is addressed at all, it comes down to this: we can't help you. It is said in different ways in different texts. Here are some typical comments.

> There are many patterns of word stress in English...Words of two or more syllables have specific stress patterns...When in doubt about the stressing of a word, consult a recommended dictionary (Gordon and Wong 1961:23).

> Stress...is not predictable (English Language Services 1967:viii).

> There is no simple way of knowing which syllable or syllables in an English word must be stressed, but every time you learn anotner word you must be sure to learn how it is stressed; any good dictionary of English will give you this information (O'Connor 1967:115).

If your comments have echoed these, as mine have, you know how unsatisfactory this answer is to the foreign student who asks again and again: Is there any way to know which stress pattern goes with which word?

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This question which has left many of us feeling so helpless, I believe, does have a better answer. The answer is beginning to emerge from the generative phonological work of Chomsky and Halle (1968), J.R. Ross (1972) and others.

For most ESL teachers, however, the insights into English phonology coming from this school of linguistics are hidden. They are hidden away in the quasi-algebraic symbology of rewrite rules and distinctive-feature analysis. The job facing those of us who try to mediate between theoretical linguistics and the down-to-earth demands of the classroom is to translate these insights into materials which are comprehensible not only to the teacher, but in particular, to the linguistically unsophisticated foreign student.

In this effort of translation, I have had the help of a particularly able team of pronunciation teachers, mostly ESL graduate students at the University of Illinois, who, over the last year and a half have been writing, using, and evaluating pronunciation materials which employ many of the generative phonological insights into vowel, consonant, and stress phenomena of English. Here, I want to share with you some of our work on word stress (Dickerson, forthcoming b).

Easy Cases: Final Strong-Syllable Words

Generalizations having to do with words ending in a final strong syllable--a syllable containing a long vowel, or a short vowel followed by two or more consonants--have yielded readily to translation into teaching materials. The majority of our Latin-stem verbs--reject, propose, intervene--are of this kind. Many final strong-syllable nouns and adjectives and verbs suffixed with a strong syllable like -ate, -ify, are included

here. In class and in a programmed workbook, students are led to discover generalizations derived from the Main Stress Rule and the Alternating Stress Rule, such as,

> A final strong-syllable verb is stressed on that final syllable, if the syllable is not a suffix. (cf. divíde, repéal, protést).

Or, another generalization,

> Final strong-syllable nouns, adjectives, and suffixed verbs of three or more syllables retract stress to the third syllable from the end (cf. crócodile, díffiçùlt, refrígeràte, mágnifỳ).

By focusing only on the major stress of the word, and by giving adequate written and oral practice which is indispensable, we can bring the majority of these words quickly into the learner's control.

Tough Cases: Final Weak-Syllable Words

The bulkier part of the English lexicon, however, and the part which is more challenging to the learner, contains words ending in a weak syllable. A weak syllable can be defined briefly as a syllable containing a simple vowel only, or at most, one following consonant. Here we find words like capital, emphasis, injection.

There is a ready way to handle suffixed words when the stress is predictable. Namely, the stress is taught with reference to the affix. For example, the large set of i-affixes: ⟨-ion, -ial, -ian, -ious, -ity, -ic(al), -io, -ior, -ia, -ium, -ient, -ience⟩ etc. are all easily identifiable--all begin with ⟨i⟩. Furthermore, the major stress of i-affixed words is located on the syllable before the affix in ninety-nine percent of the cases: chámpion, vicínity, ménial, Índian.

But what do we do with suffixed words where the stress is not so neatly predictable? For example, words ending in ⟨-ary, -ory⟩ as in

rótary, exémplary, plánetary, or words ending in ⟨-al, -ous, -ent⟩ and so on. And what about all those final weak-syllable words which are not suffixed at all?

The SISL Principle. It is here that we have had especially good success using an evaluation principle extracted from several of the stress-assignment rules of Chomsky and Halle (1968) and Ross (1972). The Romance Stress Rule is embedded in their Main Stress Rule in order to assign major stress; it is in Ross's Retraction Rule and in Chomsky's and Halle's Main Stress Rule to reassign major stress; and it is in Chomsky's and Halle's Auxiliary Reduction Rule to assign lesser degrees of stress. In fact, the substance of these various rules and subrules is to identify the environments in which the Romance Stress Rule operates.

The heart of the matter, then, is the Romance Stress Rule which we have extracted from the various rules. It operates this way: Most typically it applies to some syllable inside the word, a syllable we call the starting syllable, indicated by the (↑) below. There may be as many as three syllables to the right of the starting syllable or as few as none. This is symbolized as Σ_0^3 where Σ means syllable. It may be, of course, that the starting syllable is the only syllable left in the word; it is the initial syllable. So, since it is the only possible place to assign primary stress, we stress the initial syllable. We stress initial whether the starting syllable is weak or strong. See a. below. In some words there are additional syllables to the left of the starting syllable. Regardless of these syllables, if the starting syllable happens to be strong, we must assign primary stress to that strong starting syllable. See b. below. If however, the starting syllable is weak, then we stress the syllable to the left of the starting syllable. See c. below.

		Stress
a.	$\# \underset{\uparrow}{\acute{\Sigma}} (\Sigma_0^3$	Initial
b.	$\# \Sigma_0 \underset{\uparrow}{\acute{\Sigma}_S} (\Sigma_0^3$	Strong
c.	$\# \Sigma_0 \underset{\uparrow}{\acute{\Sigma}} \Sigma_W (\Sigma_0^3$	Left

This principle is what I call SISL--an acronym for Stress Initial, Strong, or Left. That is, stress the starting syllable if it is initial; if it is not initial, stress it if it is strong; if it is not strong, then stress the syllable to the left of the starting syllable.

It turns out that the SISL evaluation principle can be applied correctly to words on the basis of spelling in 95 out of 100 cases. In our approach, then, spelling is the analog of the underlying phonological representation of words and SISL is in part the analog of a derivational rule which generates the properly stressed output (Dickerson 1975).

The Uses of SISL. The big question remains: Where does SISL apply? Where is the starting syllable? We can look at a few answers; they are simple rules. First, given words ending in ⟨-ary, -ory⟩, the learner's rule is this, in straightforward prose:

Apply SISL to the syllable to the left of the affix.

Examples are: fáct(ory, compúls(ory, aúdit(ory: stress initial, stress strong, stress left, respectively.

Technically, we have applied one part of the Main Stress Rule and then the Stressed Syllable Rule.[1] But in practice, we have avoided many of the technicalities. We have done so, first, by separating out what is

meant by strong and weak syllables as they relate to spelling. This distinction is used early for stress purposes well before SISL is introduced. Second, we have separated out and operationalized the Romance Stress Rule. The result is the SISL evaluation principle. Third, we have isolated for special focus the location of the starting syllable. This takes the form of simple rules. Fourth, notational devices of rewrite rules are converted into simple prose. And finally, distinctive feature representation is recast in articulatory terms. In short, what we are finding is that behind the notationally complex generative rules there are simple, teachable, and learnable generalizations.

We can look at another example: words suffixed with ⟨-ent, -ant, -ence, -ance, -ency, -ancy⟩.[2] The student generalization is the same one as before:

> Apply SISL to the syllable to the left of the affix.

As a sample, we can see the pattern of stress initial, stress strong, and stress left in the following words: stúd(ent, impórt(ance, hésit(ancy.[3]

Other weak-syllable affixes, like ⟨-al, -ous⟩ and the omnipresent ⟨-y⟩, can be handled under the same generalization applying to nonsuffixed nouns and adjectives, namely,

> If a noun or adjective ends in a weak syllable, begin SISL to the left of that syllable.

Illustrating the ISL of SISL are: nérv(ous, accidént(al, déstin(y.[4]

When we come to verbs, the most efficient generalization applicable is that SISL applies to the final syllable of verbs which end in a weak syllable. What happens, then, is that only stress left applies: The starting syllable of profit and abandon is the last syllable. Since it is weak, we stress left. The student generalization is the following:

> If a verb ends in a weak syllable, major stress falls on the next-to-the-last syllable.

This generalization runs into competition from cases of final weak-syllable Latin-stem verbs, verbs ending in ⟨-pel, -bel, -fer, -mit⟩ and the like, which are stressed finally: compél, defér, readmít. These particular verb stems are singled out for special attention and for contrast with verbs which follow the final weak-syllable generalization.

These, then, are some of the applications of SISL. With them we are able to put the bulk of the final weak-syllable lexicon of English at the learner's command. With these rules and the generalizations about final strong-syllable words, the student is able to properly stress more than 95 percent of the educated vocabulary he encounters.

The Users of SISL. We have found this type of information, that is, SISL and the location of the starting syllable, most successful with adult students who have attained at least an intermediate level of proficiency--usually a couple of years of English. This information is probably not useful for dealing with children, and it is not for beginning level instruction. In the earliest stages of ESL instruction, vocabulary is kept largely to monosyllabic and bisyllabic words where stress is not a major issue. Latinate vocabulary and affixed words (except for inflectional suffixes) are not high in frequency. So at the beginning levels, the student has little to work with and the problem of stress is not yet acute.

However, at the right level, students take to this information with gusto. It amounts to one revelation after another at points where they have experienced difficulty or uncertainty. Once accustomed to this kind of instruction, students arrive at generalizations sometimes before the teacher has finished writing a set of example words on the blackboard. Given adequate practice, students begin to get a feel for the expected pattern of stresses as they relate to sequences of syllable types. Our

posttests after one semester of pronunciation instruction show marked improvement in the articulatory control students have of word stress. This is a significant departure from our experience in earlier semesters before stress-assignment information was built into the lesson material. It is this kind of response which encourages us to feel that it is definitely worth the effort to find ways of putting generative phonology to work in the ESL classroom.

A New Pronunciation Class Goal. The enthusiasm we have encountered for the stress material and the accompanied learning it has generated have also encouraged us to broaden the goal we place before the learner. Besides the goal of his gaining articulatory control over the sounds of English, we have challenged the learner with another goal which is uncharacteristic of pronunciation classes, namely, the goal of being able to pronounce not only words he already knows, but also words he has never seen before. While an uncharacteristic goal, we feel it is nevertheless realistic, given the integration into our pedagogical materials of insights from recent phonological work (Dickerson and Finney, forthcoming).

Conclusion

I believe we can now give our students a more satisfactory answer when they ask about the regularity of word stress. We can say, as we have not dared to say before: Stress on words is largely predictable, and you can find the patterns yourself. It is not necessary to memorize the stress of every word you encounter, nor is it necessary to carry around a pocket dictionary for stress information.

We do not, however, want to mislead our students. So, we should emphasize that stress is largely predictable. Since we are dealing with language, and in many cases dealing with it through spelling, all our rules

have exceptions. Even so, the generalizations capture the facts of English stress so well that they will mislead the student in only a minute number of cases. From this point of view, the rules are unquestionably worth teaching in order to fill a long-empty gap in our pedagogical materials.

Who knows, if we can train our foreign students to put the emphasis on the right syllable, there may still be hope for those of us native speakers who would like to be able to extemporize in calypso.

Notes

1. That is, the Main Stress Rule assigns primary stress to the tense /ō/ of -ory, then the Stressed Syllable Rule moves it by SISL further left. In Chomsky and Halle (1968), the Stressed Syllable Rule is part of the Main Stress Rule. Ross has pulled it out and put it into his Retraction Rule which also contains the Alternating Stress Rule in a revised form.

2. Although the -nt and -ns (⟨nce⟩) clusters form strong syllables, they behave like weak syllables. They are easily identifiable affixes.

3. By relying on spelling without reference to the underlying phonological form, the technical problem of having a tense vowel in the starting syllable of perspirant, resident, president, ignorant, reverent, confident, precedent, provident, etc., can be avoided.

4. In actual instruction, $\Sigma_s y$ is separated from $\Sigma_w y$. The final weak-syllable rule applies to the latter but not to the former which is stressed by applying SISL to the syllable to the left of $\Sigma_s y$, eg., ministry, warranty, faculty. The affix ⟨-ly⟩ is omitted entirely (Dickerson, forthcoming a).

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